



## Analysis of the Spatial Perception of Antalya Vocational and Technical Anatolian High School as a Historical Building

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### ABSTRACT

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This study aimed to analyze the spatial perception of educational buildings with historical significance by users. In this context, Antalya Vocational and Technical Anatolian High School, which is a historical building, was discussed as a material. A questionnaire was applied to individuals who graduated from this high school to examine how the facade design and garden layout were perceived in the spatial evaluation of the high school discussed in the study. Three different facade designs (modern, traditional, and mixed) based on the building complex were prepared using the AutoCAD, 3D Max, and Photoshop CS3 programs to be used in the questionnaire form consisting of open-ended and closed-ended questions. The frequency analysis was performed using the SPSS program to evaluate the data obtained after the questionnaire. According to the obtained results, it was determined that the middle age group was highly interested in the traditional and mixed facade design. It was observed that the participants further preferred the modern facade design as their level of education increased. It was observed that the participants preferred the mixed facade design more as their income level increased. Furthermore, it was determined that the mixed facade design was generally preferred more by the participants. In conclusion, the quality of historical buildings from the past should be updated with a modern perspective. Thus, positive effects will be achieved for the continuity of the building and its compliance with the environment. It is foreseen to provide positive effects both in terms of functionality and in the field of visual admiration and comfort by evaluating the changing needs of society over time and environmental factors together. On the other hand, while positive elements ensure the continuity of buildings and building complexes, it will also be possible to contribute to their becoming an urban image.

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## Introduction

Nowadays, especially the design of public space is considered a part of urban design with the aim of bringing memory and unique identity to the city. As a result of the modernization movement after the industrial revolution and the reconsideration of cities, the experience of public space is restricted. Many studies indicate that the experience of public space and the use of space are determinants in the dynamics of social life (Varol, 2004). It comes to the world as an entity belonging to space, and space defines the consciousness of individuals. Thus, it makes it possible for individuals to relate to spaces beyond being outside (Tatar, 2022).

In the historical process, it is observed that the concept of space for individuals is shaped as a practice creation area or a specified closed area of an experience. Especially as

an urban tool, public space and places come to the forefront in the context of planning and gaining experience (Abusaada and Elshater, 2021). As users have a say in the space based on urban planning, there is an increase in belonging and satisfaction, especially in function, design, infrastructure, and movement areas of public spaces (Magalhães and Carmona, 2006). The adaptive reuse of buildings for new uses is much more than a technical or practical application. It is rather a complex process that ensures the continuity of the social, cultural, and spatial dynamics of cities and communities worldwide and transforms them (Lynch, 2022).

In the transformation of a space into cultural heritage, reconsideration of that place on the urban plane can be regarded as an inclusive solution. It may be possible to

increase the interest in that area by re-incorporating or removing something from these spaces that have changed over time (Wise and Jimura, 2020). Thus, it becomes compulsory for spaces to readapt to the city and society, which are changing with each passing day. The loss of some functions in this area with technological advancements requires the reconsidering and restructuring of spaces for reasons such as the failure to fulfill users' needs and meet the current expectations (Eryiğit and Anıktar, 2021).

It is necessary to mention the need for talking about a standard for a design when it is considered from an artistic and functional point of view (Demirci and Arabacıoğlu, 2022). It reveals that the common design role of building facades also represents the value of the building structure. The concept of space in the whole city, which comes together visually with the facades of buildings, is characterized by its morphological features as the element that shapes, stimulates, and produces it (Huxtable, 2004). Considering that designs are not only produced with visual elements but also new meanings of these objects create new reflections, a building also has a conceptual meaning beyond just a formal architectural production (Pallasma, 2011).

When educational buildings are examined from the historical process, they display an appearance shaped by historical effects. In the design of public buildings such as educational buildings, buildings are constructed on typical projects prepared in line with the criteria determined by authorities (Demir Yıldız and Dönmez, 2017). However, on the other hand, as a serious problem in building design in this planning method, the problem of whether the user-structure compliance can be established or the unforeseen error in the prepared project means that there is a decrease in the efficiency of use and user satisfaction of the other projects that have been implemented or will be implemented (Dinç and Onat, 2013).

Societies have given great importance to education throughout history, and therefore, it is observed that educational buildings have become historical centers in the context of urban structuring (Sözen, 1972). It is important that they are at the focal point in shaping our life experiences and have effects on the individual and the effectiveness of teaching. As a whole, the space where schools are located does not only interact with students in and around the schools. It also shapes the experiences of various stakeholders, including parents and educators (Tate and Högbe, 2018). The planning and construction of educational buildings draw attention, especially among public buildings. They are considered a reflection of the structuring, development, and governance of society in many areas (Demir Yıldız and Dönmez, 2017). In the reconsideration of buildings, it has become a requirement to evaluate public buildings, such as educational buildings, in terms of energy efficiency, usefulness, and user satisfaction (learning and communication efficiency) (Gooding et al., 2021).

In their study on user satisfaction through the adequacy of the design and arrangement of garden areas in schools, Bundschu-Mooney (2003) showed that the green space arrangements in the space ensured that the relationship between the building and the user could be established through these areas, such as ensuring the rapprochement

with nature, creating a sense of belonging, and provided satisfaction in the person. Allen et al. (2018) emphasized the broader socio-ecological context of peers, students, and teachers in the school environment, in addition to the multiple characteristics of school belonging for students. Fullilove (1996) described the processes by which spatial familiarity developed detailed cognitive knowledge of people's environment. Thus, they indicated that the identity of the space became clear in relation to the inference of a sense of self depending on the places they occupied in an individual's life.

Historical buildings, which refer to tangible cultural heritage, are important identity elements with architectural, cultural, artistic, and scientific qualities of the past. In this context, their preservation will benefit the establishment of meaningful connections between the past and the future and increase the sense of belonging in the region where they are located (Kutlu and Ergün, 2021). Many studies have found a positive relationship between students' needs for belonging to the school buildings where they are educated and the well-being of their psychological relationships (Karaman and Tarm, 2018; Kitchen et al., 2015). Considering that it is important to connect the space and the individual, it becomes essential to realize redesign and renovation solutions consciously. Such solutions should be efforts to increase those aspects of the environment that define the attachment to the place (Inalhan and Finch, 2004). With individual-centered approaches, it can be a useful complement to traditional study designs (Gabellieri, 2021).

This study aimed to analyze the spatial perception of educational buildings with historical significance by users. Thus, it was intended to investigate how an educational building with historical significance is evaluated both with its historical aspect and with the period it is in. In this way, it was aimed to develop a correct perspective in renovation projects in which the building is updated and reconsidered.

## Materials and Methods

The basic materials in this study were the questions in the questionnaire prepared with international and national resources, the SPSS program (SPSS Inc., 2002) to evaluate these questionnaire responses, and AutoCAD 2020, 3D Max 2020, and Photoshop CS3 programs to create alternative models of the building. In this context, along with the information obtained in the study, three-dimensional visuals and the questionnaire study prepared to evaluate the building were discussed as the basic materials. The building complex of Antalya Vocational and Technical Anatolian High School in Muratpaşa District of Antalya Province, which is important due to its location in the city and being a historical educational building, constituted the study area. The location of Antalya Vocational and Technical Anatolian High School is presented in Figure 1.

Antalya Vocational and Technical Anatolian High School, which is discussed as the study area, is located on block 71 and parcel 2 in Deniz Neighborhood, on Konyaaltı Street, within the borders of Muratpaşa District, Antalya Province. The whole building was built on an area of 16,911.10 m<sup>2</sup> (Anonymous, 2020). The first establishment of the building started with the opening of

the leveling, blacksmithing, and carpentry departments as the Male Art School in Şarampol in 1944. Until the new workshop buildings were built, the shed buildings in the area, which are the Governor's Mansion at the present time, continued to be used as workshops. The workshop buildings of these departments were completed in 1969 and opened to education (ANTEM DER, 2020). The layout plan of Antalya Vocational and Technical Anatolian High School is presented in Figure 2, and the facade image of the building is presented in Figure 3.

The construction of Block A building facing the main street and the electrical department was started in 1945. After it took two years to complete the construction of the service buildings, the school was moved to its current location. The complex, which developed with the newly added structures in line with the increasing needs over time, has had technical equipment in more areas (ANTEM DER, 2020).

In the study, a questionnaire was applied to the graduates of Antalya Vocational and Technical Anatolian High School to evaluate their spatial perception. The results of this questionnaire were analyzed by frequency analysis in the SPSS program. With the alternative three-dimensional facade design models prepared in line with the evaluation of the obtained results, it was aimed to determine which model was considered positive by the graduates in the second questionnaire study. With this information, the study was supported by further literature research. The diagram visual of the method flowchart, in which the progress stages of the study are transferred, is shown in Figure 4.

In the analysis of the visual perception of Antalya Vocational and Technical Anatolian High School with the study, it was aimed to protect the design of the building on the facade and the original character of the building and support it with the attachments in these prepared recommendations. Thus, it was intended to present a study in which the dominant aspects and weaknesses of the historically important educational building would be discussed from different perspectives as a result of evaluating user perception. A modern approach alternative since the building has a modern appearance in terms of design elements, a traditional approach alternative due to its characteristic of being a historical building, and a mixed design approach in which both situations are evaluated together were preferred.

Based on the idea developed for the modern proposal, it will be ensured that the columns read on the facade surface are surrounded by metal constructions and, thus, modern design elements are supported so that the facade movements, which already have a modern perception, come to the forefront. In the facade works, the use of bricks has been featured due to the attractiveness of brick material and the fact that it is a material encountered in the general use of industrial buildings.

The modeling prepared for the traditional approach necessitated the use of local materials and the reconsideration of it together with local usage techniques. For the school located in Antalya province, the local materials and construction techniques of the buttoned houses in the Akseki district of Antalya province were taken as an example. It reveals a traditional facade design style in which natural stone cladding and wooden details are at the forefront.

In the shaping of the mixed facade design over an existing building, it is important to determine the quality that will bring the building to the forefront. It is aimed to increase the positive aspects of the building and eliminate the negative aspects together with the new situation. In the recommended facade work, local stone and metal construction work was preferred as the material in the third alternative, in which the prominent features of modern and traditional propositions are combined. In the combination of these two works, a synthesis of stone material and modern metal construction work was applied. Considering these factors, a modern approach was created with the use of textured white paint on the wall surfaces and metal construction. In this context, the building's exterior walls and the layout of the entrance door were also reconsidered. The elements of the modern alternative and the mixed alternative were highlighted in the entrance door design to be suitable for mixed modeling.

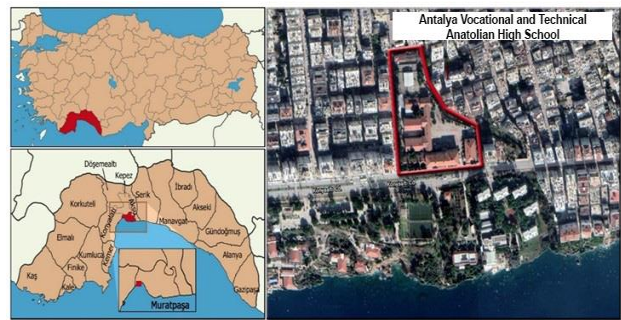


Figure 1. The location of Antalya Vocational and Technical Anatolian High School (URL-1, 2020)



Figure 2. The layout plan of Antalya Vocational and Technical Anatolian High School



Figure 3. The facade image of Antalya Vocational and Technical Anatolian High School

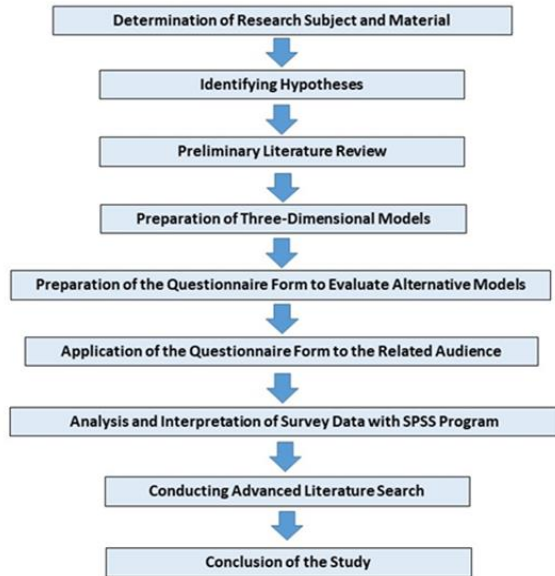


Figure 4. The method flowchart

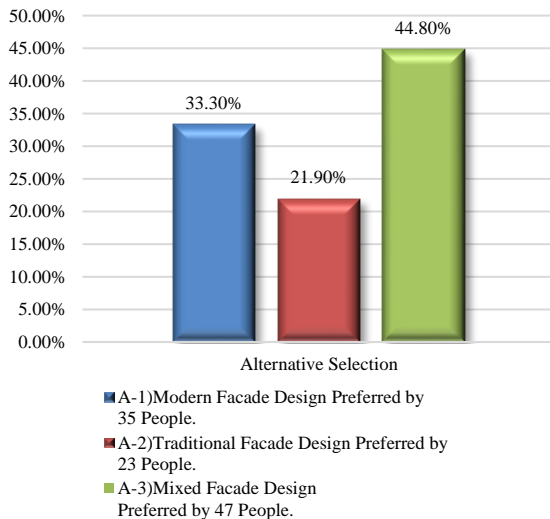


Figure 5. Preference distribution graph of the participants among alternative facade designs

Accordingly, a design proposal was developed for all three alternatives in terms of the styles determined by motifs provided with wooden laths with stone coating or brick coating material to be applied by preserving the existing roof cover, facade openings, and motif applications in the building, and the diagrid metal construction work. Thus, it was aimed to ensure that the building would become a more prominent structure as a

public building together with its local architectural values. A design concept suitable for the alternative facade design on the exterior walls and the entrance door was preferred in this direction in order to support this work. Thus, different suggestions were made in the design and eaves applications of the vehicle entrance door and pedestrian entrance door in accordance with this situation in order to comply with the alternative design and show integrity.

The visuals of the three-dimensional alternative facade models prepared for the building are presented in Table 1.

## Results and Discussion

In the questionnaire application within the scope of the study, the participant characteristics of the graduates of Antalya Vocational and Technical Anatolian High School were examined. The participant characteristics in the obtained data are shown in Table 2. According to these results, 78.1% of the participants were male, and 21.9% were female. According to the study results, 52.4% of the respondents were between the ages of 31-40, and 67.6% were married. According to the questionnaire data, it was concluded that 82.9% of the participants lived in Antalya. Of the participants, 34.3% completed their education as bachelors and continued their professional lives with this level of education. In the questionnaire, the majority of the participants stated that their occupation (24.8%) was a worker. Concerning the income group of the respondents, the majority (30.5%) had a monthly income of 5001-7500 TL. According to the questionnaire data, with regard to the duration of residence in Antalya, while 35.2% of the participants stated that they lived there for 21-30 years, 35.2% indicated that they lived there for 31 years or more.

In line with the analyses, it was concluded that female participants preferred the modern facade design modeling by 43.5% from among the prepared alternative modeling images. It was observed that male participants preferred the mixed facade design modeling by 50%. The details of the gender-based preference distribution of the participants is given in Table 3. In the questionnaire data, it was determined that the majority of female participants tended toward the modern facade design while male participants tended toward the mixed facade design. Likewise, in the study by Andaç Güzel (2021), the result that modern-looking elements were more liked than classical-looking elements in the design evaluations of female participants supports this situation.

In the models preferred by the participants depending on their age groups, while the mixed facade design was preferred in the age group of 20 and below, the mixed facade design was preferred in the 21-30 age group by 50%, the mixed facade design was preferred in the 31-40 age group by 41.8%, and the traditional and mixed facade designs were equally preferred in the 41-60 age group by 35.7%. The mixed facade design was preferred by 60% in the age group of 61 and above. Their distribution by age is presented in Table 4. In the age-related analysis in a case where the majority of the participants preferred the mixed facade design, it was observed that a group between the ages of 41-60 agreed equally with the traditional facade design and mixed facade design. The study by Ünal (2008) determined that the middle-aged (mean age of 50) group preferred the traditional structure with the perception of visual familiarity for the structure observed. These data support the high rate of participation of middle-aged participants in the study in

their preferences between traditional modeling and mixed modeling, which is a combination of traditional and modern.

Concerning the participants' level of education, in the alternative facade design preferences, while the mixed facade design was preferred by 38.3% at the high school education level, the mixed facade design was preferred by 46.4% at the associate degree level, the modern facade design was preferred by 41.7% at the undergraduate level, the modern facade design was preferred by 60% at the postgraduate level, and the mixed facade design was preferred at the doctorate level.

The distributions according to education levels are presented in Table 5. In line with the questionnaire data, the majority of the participants preferred the mixed facade

in alternative models, according to their educational status. It was observed that the group with undergraduate and postgraduate education preferred the modern facade design. In his study, Sağocak (2007) argued that modern consumption tools gained value in terms of their meaning or the relationship they reflected rather than their features and functions. Based on this information, it can be indicated that the consumed object or phenomenon gains meaning through a cultural value in addition to its economic aspect. In evaluating spatial perception levels, it can be said that cultural value exhibits a perception orientation toward the current or modern as a reflection of individual preferences over the level of education.

Table 1. The visuals of the three-dimensional alternative facade models prepared for the building



In the alternative preferences of the participants depending on their income levels, while the mixed facade design was preferred by 52.4% at the income level of 3.000 TL and below, the modern facade design was preferred by 40.7% at the income level of 3.001-5.000 TL, the modern facade design was preferred by 43.8% at the income level of 5.001-7.500 TL, the mixed facade design was preferred by 65.0% at the income level of 7.501-15.000 TL, and the mixed facade design was preferred by 60.0% at the income level of 15.001 TL and above (Table 6). In the selection of building alternatives according to the income level, the majority turned to mixed facade design, while the group

with an income level of 3.001-5.000 TL and 5.001-7.500 TL highly preferred the modern facade design. Studies have revealed that the middle-income group prefers a simple and modern appearance in design preferences. It was observed that they preferred complex materials with an increased design level as the income level increased (Sadıkoğlu and Özsoy, 2016). This information shows that more detailed past and current design understandings are at the forefront with the increasing income level in the preferences of the participants and the increase in the welfare level.

Table 2. The participant characteristics of the graduates

The Participant Characteristics	Criteria	f	Percent (%)
Gender	Female	23	21.9
	Male	82	78.1
	Total	105	100
Age	≤ 20	3	2.9
	21-30	28	26.7
	31-40	55	52.4
	41-60	14	13.3
	61 ≥	5	4.8
	Total	114	100
Marital Status	Married	71	67.6
	Single	34	32.4
	Total	105	100
City Where You Live	Antalya	87	82.9
	Isparta	5	4.8
	Bursa	2	1.9
	Konya	5	4.8
	Muğla	1	1.0
	İzmir	1	1.0
	İstanbul	4	3.8
	Total	105	100
Your Education Level	High School	35	33.3
	Associate Degree	28	26.7
	Undergraduate	36	34.3
	Master Degree	5	4.8
	Doctorate	1	1.0
	Total	105	100
Your Job	Architect	11	10.5
	Engineer	17	16.2
	Teacher	4	3.8
	Manager	3	2.9
	Expert	5	4.8
	Civil Servant	5	4.8
	Self-employment	16	15.2
	Technician - Operator	12	11.4
	Employee	26	24.8
	Logistics	1	1.0
	Tourism	1	1.0
	Accountancy	2	1.9
	Student	2	1.9
	Total	105	100
Monthly Income	≤ 3.000 TL	21	20.0
	3.001-5.000 TL	27	25.7
	5.001-7.500 TL	32	30.5
	7.501-15.000 TL	20	19.0
	15.001 TL ≥	5	4.8
	Total	105	100
Your Length of Stay in Antalya	0-5 Years	2	1.9
	6-10 Years	13	12.4
	11-20 Years	16	15.2
	21-30 Years	37	35.2
	31 Years and More	37	35.2
	Total	105	100

On the other hand, the fact that middle-income participants prefer modern designs to a greater extent can be considered in connection with their ability to establish a close relationship in terms of financial possibilities.

For the questionnaire study in which alternative facade design models were evaluated, 33.3% of the participants preferred the modern facade design, 21.9% preferred the traditional facade design, and 44.8% preferred the mixed facade design. The distribution of the alternatives preferred by the participants is shown in Figure 5. The study by Oral (2019) argued that traditional buildings were more preferred by users with a modern evaluation. In light of this

information, it can be stated that mixed building designs attract more attention and are appreciated by users, together with the connection from the past and the current understanding of the present.

It can be indicated that this situation is intertwined as a combination of the past, the visual familiarity of individuals, as well as the positive effect of the modern and contemporary approach from the environment. In line with these analyses, it is possible to say that the majority of the participants included in the study tended toward the mixed facade design.

Table 3. Alternative facade design preferred by the participants depending on gender

Participant Gender		Alternative Modeling Selected by Participants			
		Modern Facade Design	Traditional Facade Design	Mixed Facade Design	Total
Female	n	10	7	6	23
	%	43.5	30.4	26.1	100
Male	n	25	16	41	82
	%	30.5	19.5	50	100
Total	n	35	23	47	105
	%	33.3	21.9	44.8	100

Table 4. Alternative facade design preferred by the participants depending on age

Participant Age		Alternative Modeling Selected by Participants			
		Modern Facade Design	Traditional Facade Design	Mixed Facade Design	Total
≤ 20	n	1	0	2	3
	%	33.3	0.0	66.7	100
21-30	n	6	8	14	28
	%	21.4	28.6	50.0	100
31-40	n	22	10	23	55
	%	40.0	18.2	41.8	100
41-60	n	4	5	5	14
	%	26.6	35.7	35.7	100
61 ≥	n	2	0	3	5
	%	40.0	0.0	60.0	100
Total	n	35	23	47	105
	%	33.3	21.9	44.8	100

Table 5. Alternative facade design preferred by the participants according to their education level

Participant Education Level		Alternative Modeling Selected by Participants			
		Modern Facade Design	Traditional Facade Design	Mixed Facade Design	Total
High School	n	10	7	18	35
	%	28.6	30.4	38.3	100
Associate Degree	n	7	8	13	28
	%	25.0	28.6	46.4	100
Undergraduate	n	15	7	14	36
	%	41.7	19.4	38.9	100
Master Degree	n	3	1	1	5
	%	60.0	20.0	20.0	100
Doctorate	n	0	0	1	1
	%	0.0	0.0	100	100
Total	n	35	23	47	105
	%	33.3	21.9	44.8	100

Table 6. Alternative facade design preferred by the participants according to their income levels

Participant Income Level		Alternative Modeling Selected by Participants			
		Modern Facade Design	Traditional Facade Design	Mixed Facade Design	Total
≤ 3.000 TL	n	4	6	11	21
	%	19.0	28.6	52.4	100
3.001-5.000 TL	n	11	9	7	27
	%	40.7	33.3	25.9	100
5.001-7.500 TL	n	14	5	13	32
	%	43.8	15.6	40.6	100
7.501-15.000 TL	n	5	2	13	20
	%	25.0	10.0	65.0	100
15.001 TL ≥	n	1	1	3	5
	%	20.0	20.0	60.0	100
Total	n	35	23	47	105
	%	33.3	21.9	44.8	100

## Conclusion

Based on the information obtained from the literature and the questionnaire questions addressed through alternative models presented to the participants at the end of the study, from specific to general, Antalya Vocational and Technical Anatolian High School can be considered as places where educational complexes should be evaluated with a holistic perspective on the areas in which individuals participate at most in social life. It can be said that buildings of this nature have social importance, especially in terms of being included in the public space. Furthermore, the fact that user satisfaction is an issue that needs to be emphasized since the majority of society spends a lot of time in these places should be considered remarkable in terms of the relationship between buildings and users.

In the study results, according to Table 4, the participants in the middle age group were interested in modeling with traditional and mixed styles. Table 5 shows a perception tendency toward the modern style, which can be considered close to the present, as a reflection of participant preferences over the education level criterion in evaluating spatial perception levels. On the other hand, in the evaluation in Table 6, it was observed that the mixed design concept as a past and current design concept was at the forefront as a preference, along with the increase in the income level and welfare level, in the participants' preferences of the prepared models. Along with these evaluations, it was observed that the mixed facade design was preferred more, apart from the evaluations in all criteria, as indicated in Figure 5.

In conclusion, reevaluation and updating of the traditional understanding of historical buildings with their texture and identity from the past with a modern perspective may create positive effects in terms of the building's compliance with its environment as well as ensuring its continuity. It is foreseen that evaluating the changing needs of society over time, the changing environmental order, together with the characteristic features of the building's own internal dynamics will add positive value both in terms of functionality and in the field of visual admiration and comfort. Furthermore, within the framework of these positive factors, it will be possible to contribute to ensuring that building adaptations become an urban image while providing the continuity of the building and building complexes.

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